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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,215	09/30/2003	Thomas Patrick Miller	3595.65US01	9586
24113 7590 05/01/2009 PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100				
EXAMINER				
STELLING, LUCAS A				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
05/01/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/673,215

**Applicant(s)**

MILLER ET AL.

**Examiner**

Lucas Stelling

**Art Unit**

1797

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-30 is/are pending in the application.
- 4a) Of the above claim(s) 20, 21 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 18, 19, 22-25, and 27-30 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB Patent No. 1,555,408 to Morse et al. ("Morse").
3. As to claim 18, Morse teaches a power plant which produces thermal energy which is removed to one of two heat dissipating means (**31 cooling tower, and 33 cooling pond**). Morse also teaches a selector valve, which selectively provides thermal transfer fluid to the cooling pond (**39**). Although Morse does not specifically contemplate operation of the selector valve based on the volume of the cooling pond, Morse does recognize the need for a sufficient water volume in the pond based on the expected cooling needs (**Morse page 3 lines 80-85**), and that evaporation mitigation is desired in extremely arid areas (**Morse page 3 lines 85-90**). It is within the skill and understanding of a person of ordinary skill to cease transferring thermal energy to the cooling pond when there is insufficient water in it for cooling operations. And therefore, it would have been obvious to person of ordinary skill in the art at the time of invention to transfer thermal energy to the pond in Morse when the volume is above a predetermined volume level, and to cease transferring water to the pond when water has passed a low threshold, thereby transferring water only to the cooling tower.
4. As to claim 19, Morse teaches the method of claim 18 where transferring thermal energy from the power plant to the process water pond further comprising:

transferring process water from the process water pond through the pond water heat exchanger for receiving thermal energy from the plant; and returning the heated process water from the pond water heat exchanger to the pond (**Morse Fig. 1, 26 is a heat exchanger loop in fluid communication with the pond**).

5. Morse is different than claim 19 in that the turbines connect directly to the process water heat exchanger, instead of using a turbine heat exchanger. In an alternative embodiment in Morse an independent coolant circulating circuit is used to transfer energy from the closed loop generating section and the closed loop cooling pond section (**See Fig. 3, 113 separates generator section from coolant loop, and 173 separates pond from cooling loop**). The use separate cooling loops is within the skill of a person of ordinary skill in the art because they allow for selection of differing heat transfer and working liquids based on the needs of the system; for example, the working fluid in the turbine could be methanol, the circulating coolant in the coolant loop could be freshwater or a liquid with high heat capacity, and the pond could be salt water or water with another solute that effects its evaporative properties. Therefore, it would have been obvious to use a coolant loop to transfer heat energy from a turbine heat exchange to a pond heat exchanger.

6. Claims 22-25, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morse in view of U.S. Patent No. 4,402,923 to Lang ("Lang") and "Design & Operating Criteria for a Gypsum Stack/Cooling Pond from an

Owner/Operator's Point of View" Cameron et al. ("Cameron") and U.S. Patent No. 4,917,024 to Marten et al. ("Marten").

7. As to claims 22-25, and 27-30 Morse teaches the method of claim 18, but is silent as to the pH, of the process water, whether it contains phosphoric acid, the substances listed in claim 24, or whether concentrated process water is used in a phosphoric acid production process.

8. Marten teaches the use of byproduct gypsum from the production of electricity using a coal fired power plant (**See Fig. 1**). It is within the skill of a person of ordinary skill in the art to use a cooling pond as in Morse in the coal fired plant of Marten in order to provide cooling and heat removal means of waste heat (**Morse page 1 lines 10-40, teaches that it is common to provide heat removal in a power plant**).

9. Lang teaches production of phosphoric acid using a gypsum waste pond (**See Fig. 1 and col. 10 lines 15-25**).

10. Cameron teaches that gypsum stacks are often used in conjunction with cooling ponds in chemical manufacturing processes (**Cameron page 194 in "Decanting Water from the Settling Area**). Under Rationale A of *KSR v. Teleflex*, the combination of Morse, Marten, Lang, and Cameron in such a manner as to meet the limitations of claims 22-25 and 27-30 constitutes combining prior art elements (**Morse teaches a cooling system for a power plant, Marten teaches that gypsum is a byproduct of coal fired power plants, Lang teaches using a gypsum pond in the production of phosphoric acid, and Cameron teaches that gypsum stacks and cooling ponds are used in conjunction with one another in chemical manufacturing installations**

**where gypsum is produced)** according to know methods (**combined usage of a waste pond as cooling pond, and usage of a waste pond as process water pond are shown in Cameron and Lang, respectively, the use of an industrial pond as a heat sink, waste storage/concentration, and process water pond is another form of combined usage to reduce land use -- Cameron teaches that gypsum ponds are already the chemical manufacturing plants largest land user)** to yield predictable results (**The result of combining the teachings of Morse, Marten, Cameron, and Lang would be a coal fired power plant which uses its gypsum stack in conjunction with the cooling pond and produces phosphoric acid as a useful byproduct**); and it is therefore obvious to a person of ordinary skill in the art.

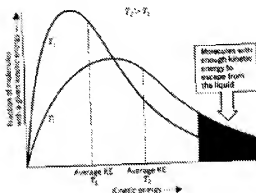
11. The specific chemical compositions claimed are incidental in the production and use of gypsum, phosphogypsum, phosphoric acid, as well as when using coal fired power plants.

12. The specific concentrations of chemicals found within the process water are incidental. And, to the extent they are critical and result effective, the *discovery of optimum value of result effective variable in known process is ordinarily within the skill in the art and would have been obvious, consult In re Boesch and Slaney (205 USPQ 215 (CCPA 1980))*.

#### ***Response to Arguments***

13. Applicant's arguments filed 4-17-09 have been fully considered but they are not persuasive.

14. Applicant argues that as newly amended claim 18 overcomes the prior art of record and by imputation the dependent claims do as well. More specifically applicant argues that now amended the method requires that the method must increase the evaporation rate of the process water in the process water pond. In response, the evaporation of the pond in Morse will inherently increase when heat energy is provided to it because the temperature will rise and the vapor pressure of the water in the pond will increase. See, e.g., Figure 8.6 from "Chemistry Structure & Dynamics" Bodner et al. 1996 for evidence of this (**Bodner Fig. 8.6, See also pages 310-311**).



**Figure 8.6** At a given temperature some of the particles in a liquid have enough energy to form a gas. As the temperature increases, the fraction of the molecules moving fast enough to escape from the liquid increases. As a result, the vapor pressure of the liquid also increases.

15.

16. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

### **Conclusion**

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Las 4-28-09

/Matthew O Savage/  
Primary Examiner, Art Unit 1797